location to the AFC. Likewise, tools and/or personnel necessary to service or repair UAVs may also be included on the shuttle. In other examples, shuttles may be partially or entirely designated for inventory transport and/or people (e.g., workers) transport. For example, some shuttles may include seats, safety equipment, etc., to ensure the safe transport of humans to and from the AFC.

As the shuttle is loaded with inbound items, a determination is made as to whether the shuttle is to depart for the AFC, as in **1104**. Determining whether to depart for the AFC may be based on a variety of factors including, but not limited to, the type of inbound items being transported, the capacity of the shuttle, the need for the inbound items at the AFC, etc. For example, if the shuttle is used to transport workers to the AFC, the shuttle may be scheduled to depart the shuttle replenishment location at a designated time. Once the designated time is reached, the shuttle may depart. In another example, if the shuttle is transporting inventory and/or fuel, the need for the loaded inventory and/or the fuel at the AFC may be determined. If additional inventory, fuel and/or other items are in-route to the shuttle replenishment location, the estimated time until arrival of the additional inbound items may likewise be considered. Still further, the time until the next shuttle departure may likewise be considered in determining whether the shuttle is to depart for the AFC.

If it is determined that the shuttle is not to depart for the AFC, the example process **1100** returns to block **1102** and continues. If it is determined that the shuttle is to depart for the AFC, the shuttle departs the shuttle replenishment location and navigates to the AFC, as in **1105**. The shuttle may be manually navigated to the AFC by an operator of the shuttle, navigated using automated controls and/or a combination thereof. As the shuttle navigates to the AFC, inbound items may be serviced. For example, UAVs may be charged by the shuttle, serviced and/or repaired as they are transported to the AFC.

When the shuttle arrives at the AFC, it is secured to and docked with the AFC, as in **1106**. Securing and docking of the shuttle may be accomplished in a variety of manners depending on the shape and configuration of the AFC and the UAV. For example, a docking arm may extend from the AFC and/or the shuttle and mate the shuttle to the AFC, thereby securing the position of the shuttle with respect to the AFC and providing a channel through which inbound items may be transported from the shuttle to the AFC. In other implementations, the AFC may include a hangar or other opening into which the shuttle may navigate and become fully or partially enclosed within the AFC. As will be appreciated, any type of docking techniques may be utilized with the implementations discussed herein.

Upon docking and securing of the shuttle with the AFC, the inbound items are unloaded from the shuttle into the AFC, as in **1108**. For example, inventory may be transported from the shuttle to a receiving location of the AFC where the items are inducted into inventory of the AFC and made available for picking and delivery. Likewise, the UAVs may be moved from the shuttle to a UAV staging area within the AFC where they may be serviced, charged, etc., while awaiting deployment instructions. Workers or other humans may likewise disembark from the shuttle into the AFC.

Once the inbound items to be delivered to the AFC have been removed from the shuttle, a determination is made as to whether outbound items are to be loaded onto the shuttle before the shuttle departs the AFC, as in **1110**. Outbound items are any items that can be carried by the shuttle that are to be removed from the AFC. For example, outbound items may include overstock inventory, inventory that is to be shipped to another AFC or a ground based materials handling facility (referred to herein as transship inventory), damaged items, waste, workers, etc.

If it is determined that outbound items are to be loaded onto the AFC, the outbound items are loaded, as in **1112**. As with inbound items, in some implementations, the shuttles may be designed for particular types of outbound items. For example, some shuttles may be configured to receive waste, damaged items, overstocked items and/or transshipments, while other shuttles may only receive humans. In some implementations, the destination of the shuttle after it departs the AFC may be considered when determining whether to load outbound items. For example, in some implementations, the shuttle may navigate to multiple AFCs delivering inbound items before the shuttle returns to earth. In such an example, non-humans may be loaded onto the shuttle and/or humans that are to be transported to another AFC may be loaded.

After the outbound items have been loaded, or if it is determined at block **1110** that no outbound items are to be loaded, the shuttle undocks from the AFC and navigates to a next scheduled destination (e.g., shuttle replenishment location, another AFC), as in **1114**. In some implementations, similar to determining when a shuttle is to depart a shuttle replenishment location, a similar determination may be made as to when/whether a shuttle is to depart the AFC.

FIG. **12** is a block diagram illustrating an example UAV control system **1210** that may be utilized with any of the UAVs discussed herein, such as the UAV **612** of FIG. **6** or the UAV **712** of FIG. **7**. In various examples, the block diagram may be illustrative of one or more aspects of the UAV control system **1210** that may be used to implement the various systems and methods discussed herein and/or to control operation of the UAV. In the illustrated implementation, the UAV control system **1210** includes one or more processors **1202**, coupled to a memory, e.g., a non-transitory computer readable storage medium **1220**, via an input/output (I/O) interface **1211**. The UAV control system **1210** may also include motors controllers **1204**, such as electronic speed controls (ESCs), power supply modules **1206** and/or a navigation system **1208**. The UAV control system **1210** further includes an inventory engagement controller **1213**, a network interface **1216**, and one or more input/output devices **1218**.

In various implementations, the UAV control system **1210** may be a uniprocessor system including one processor **1202**, or a multiprocessor system including several processors **1202** (e.g., two, four, eight, or another suitable number). The processor(s) **1202** may be any suitable processor capable of executing instructions. For example, in various implementations, the processor(s) **1202** may be general-purpose or embedded processors implementing any of a variety of instruction set architectures (ISAs), such as the x86, PowerPC, SPARC, or MIPS ISAs, or any other suitable ISA. In multiprocessor systems, each processor(s) **1202** may commonly, but not necessarily, implement the same ISA.

The non-transitory computer readable storage medium **1220** may be configured to store executable instructions, data, flight paths, flight control parameters, component adjustment information, center of gravity information, and/or data items accessible by the processor(s) **1202**. In various implementations, the non-transitory computer readable storage medium **1220** may be implemented using any suitable memory technology, such as static random access memory (SRAM), synchronous dynamic RAM (SDRAM), nonvolatile/Flash-type memory, or any other type of memory. In the illustrated implementation, program instructions and data implementing desired functions, such as those described herein, are shown stored within the non-transitory computer readable storage